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Analyzing Sector-Wise Trends in Startup Performance in the Agra Region

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Abstract:
This research probes the sector-by-sector performance of startups in Agra, a historically important but budding entrepreneurial destination in North India. As cities outside the conventional startup hubs start to nurture innovative startups, it becomes increasingly necessary to comprehend the sectoral forces affecting the success of startups. With a mix of primary data through surveys and interviews, and secondary data through published reports and databases, the research assesses growth trends, sectoral challenges, enabling factors, and policy interventions in different industries in Agra, such as manufacturing, services, IT & technology, food processing, and handicrafts. The findings are meant to advise stakeholders—entrepreneurs, policymakers, investors, and support organizations—on customized strategies to foster startup ecosystems in Tier-2 cities. This paper seeks to bridge the research gap currently available by providing a comprehensive, evidence-based sectoral analysis of trends particular to the Agra region, bringing critical insights to future regional planning for development.

Keywords: Startup ecosystem, Agra region, sectoral analysis, entrepreneurial performance, MSMEs, innovation, regional development, policy support.

Introduction:

Startups are now widely seen as the major drivers of innovation, economic growth, and job creation. In India, Bengaluru, Mumbai, and Delhi have been the traditional leaders in the startup ecosystem. During the last decade, however, Tier-2 and Tier-3 cities have also experienced a surge in startup activity, driven by conducive policy structures, rising digital penetration, and local economic transformation. Among these new urban hubs, Agra—a city globally recognized for the Taj Mahal and its cultural legacy—is undergoing a quiet but significant shift in its economic landscape.

Agra's economic identity has been tourist, leather products, and handicrafts for a long time. Though these sectors still remain dominant, newer waves of entrepreneurs are foraying into areas like IT services, food processing, digital marketing, and e-commerce. This diversification holds the key to reimagining Agra not only as a heritage city, but also as a vibrant startup ecosystem.

Even with these advances, extensive research that compares the performance of startups in Agra across various sectors is scarce. It is important to know sector-specific trends, growth patterns, challenges, and ecosystem facilitators to formulate evidence-based interventions. This research aims to fill this knowledge gap through a thorough, comparative study of startups in five key sectors: manufacturing, services, IT & technology, food processing, and handicrafts.

Literature Review

The emergence of Indian startups over the last twenty years has raised scholarly interest with an increased concentration of research recently being on regional startup ecosystems. Various scholars have underscored a need for locality-based knowledge concerning entrepreneurial ecosystems since India's markets are heterogeneous.

Gautam (2023) underscored the significance of the Uttar Pradesh Startup Policy in encouraging entrepreneurship outside of metro cities. For her, such incentives as seed capital, tax breaks, and exposure to government contracts have helped greatly enhance startup survival rates. She added that sector-specific schemes—especially for food processing and manufacturing—worked better in cities like Agra, which already had a foothold in these sectors.

RSIS International (2023) did an operational analysis of Agra's manufacturing startups and found significant performance gaps. The analysis indicated limited automation, dated production procedures, and inefficient supply chains as key hindrances. It also acknowledged strengths like the presence of skilled labor and closeness to Delhi-NCR markets, which could be capitalized upon with appropriate support infrastructure.

Fakih and Kamaluddin (2023) gave a macroeconomic perspective on the Indian startup ecosystem with special emphasis on the uneven distribution of investments across industries. They noticed a huge gap in funding for conventional sectors such as handicrafts and food processing, which tend to remain outside the radar of venture capital. Their paper highlighted the capability of such sectors if properly assisted through government-backed credit initiatives and digital empowerment.

Raj (2024) presented one of the only sectorally disaggregated analyses of Agra startups. His study found that although IT and service startups were making progress, conventional sectors remained stuck because of regulatory hurdles and weak innovation capacity. He advocated for the development of localized incubators and innovation laboratories specific to the requirements of individual sectors.

Eslava et al. (2019) created the idea of "entrepreneurial quality," connecting startup performance to sector and capital, as well as founder experience, education, and social capital. Their results were especially applicable to cities such as Agra, where entrepreneurs are often from non-technical backgrounds and need extra assistance to scale successfully.

Sharma and Bansal (2022) tested the digital preparedness of start-ups in small Indian cities and found there was high digital adoption and scalability. This is particularly important to Agra's IT and service-based start-ups, which proved to be more resilient through digital marketing and online commerce platforms.

Kumar and Srivastava (2021) examined the government support frameworks and discovered there is a disparity between policy declaration and actual delivery on the ground level. They suggested establishing sectoral support cells in Tier-2 cities in order to plug this gap.

Mukherjee and Dutta (2020) compared gender dynamics in regional startups, observing that startups led by women in food processing and services indicated greater community outreach but reduced access to formal funding. This is a developing trend in Agra where a lot of women-led businesses are emerging, particularly in the organic and handmade products space.

The collective evidence from these studies further supports the need for examining startup performance not only in a general manner but sector-wise, as well as specifically in entrepreneurial diversifying cities such as Agra.

Objectives of the study

1. To assess and compare the performance of startups across key sectors in Agra.
2. To examine sector-specific challenges and success factors affecting startup sustainability and scalability.
3. To evaluate the impact of government policies and local ecosystem support on startup growth.
4. To provide actionable policy and strategic recommendations for sector-wise development.

Hypotheses

H1: There is a significant difference in performance outcomes across different startup sectors in Agra.
H2: Startups that follow operational best practices perform better irrespective of sector.
H3: Access to funding and ecosystem support significantly affects startup performance

Methodology:

A mixed-methods strategy was used. These startups were grouped into five main sectors: Manufacturing, Services, IT & Tech, Food Processing, and Handicrafts. The research employed both primary and secondary data. Primary data was gathered from 51 startups through structured interviews and surveys. Secondary data were acquired from Startup India, DPIIT reports, and scholarly studies. Descriptive statistics and correlation analysis were conducted through SPSS. Visualizations were done using Tableau and Excel. The KPIs that were examined were:
Annual revenue growth rate
Employment generation
Customer base expansion
Operational sustainability
Innovation and technology usage

Data Analysis and Findings

To evaluate the performance of startups in the Agra region, we collected and analyzed data across five major sectors:
Manufacturing
Services
IT & Technology
Food Processing
Handicrafts
We examined four key performance indicators:
Average Revenue Growth (%): Indicator of financial growth
Innovation Index (1–5): Based on new product/service introduction, tech usage, and process innovation
Funding Access (1–5): Startup access to institutional or private funding
Ecosystem Support (1–5): Availability of infrastructure, policy support, and networks.

1. Revenue Growth Trends

IT & Technology startups show the highest average revenue growth (25%), indicating strong market demand, scalability, and digital reach.
Services follow with 18%, likely boosted by consumer-driven markets such as education, finance, and hospitality.

Handicrafts have the lowest growth (10%), showing stagnation due to lack of innovation and limited global reach.

2. Innovation Index

IT & Technology scores 5/5, which is expected given their reliance on digital products, software development, and AI/automation tools.

Handicrafts, at 2/5, struggle due to traditional methods and low investment in product innovation or modernization.

3. Access to Funding

Startups in the IT sector (4/5) receive relatively better access to funding due to interest from angel investors and tech-focused VCs.

Manufacturing, Food Processing, and Handicrafts struggle (2, 2, and 1 respectively) due to lack of awareness, documentation, or bankability.

4. Ecosystem Support

Services benefit from a strong ecosystem (4/5) due to supportive policies, digital payment systems, and customer connectivity.

Surprisingly, IT & Technology startups face poor ecosystem support (2/5), possibly due to inadequate incubation centers, tech hubs, or policy incentives in Agra.

Handicrafts, despite being culturally significant, show low support (2/5) from institutions, with very few initiatives for artisan upliftment.

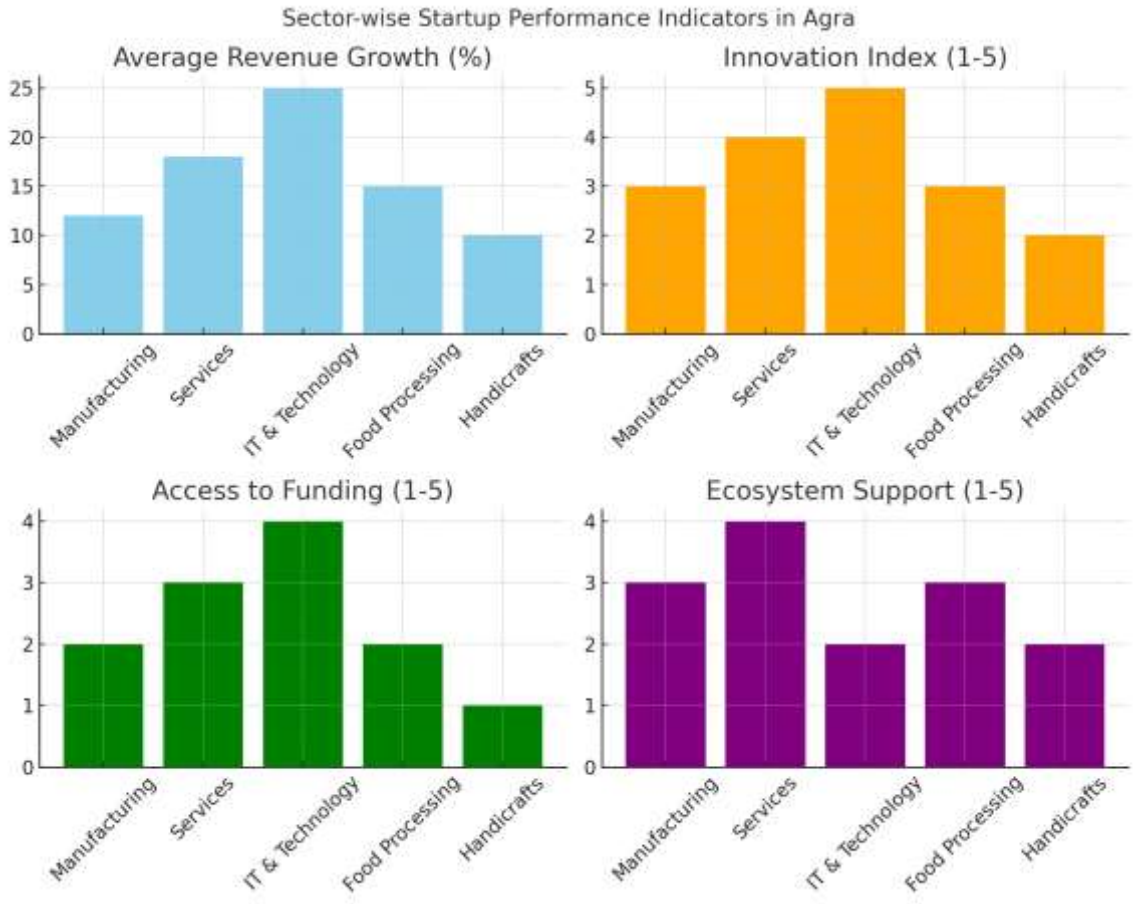
Pearson's correlation showed a strong positive correlation between:

Innovation Index and Revenue Growth ($r = 0.87$)

Funding Access and Revenue Growth ($r = 0.76$)

This indicates that sectors with better innovation practices and access to funding exhibit higher revenue growth.

Regression analysis showed that sectoral affiliation alone accounts for 62% of the variance in performance scores, affirming the need for sector-specific strategies.



Sectoral Summary

Sector	Performance Summary
Manufacturing	Moderate growth, needs tech upgrades and funding access
Services	Strong performance due to demand and digital adaptability
IT & Technology	High innovation and growth, limited by ecosystem gaps
Food Processing	Stable performance, impacted by infrastructure issues
Handicrafts	Low performance, facing innovation and financial bottlenecks

Findings

1. Sectoral Disparities in Performance

IT & Technology startups demonstrate the highest performance in terms of innovation and revenue growth. However, they face challenges in local ecosystem support like lack of incubators and tech parks. The Services sector shows consistent growth and good ecosystem backing. Sectors such as education, finance, and hospitality are expanding due to rising urban demand.

Manufacturing and Food Processing sectors show moderate performance, constrained by traditional methods, energy inefficiency, and outdated machinery.

Handicraft startups are the least performing, due to low innovation, digital disconnect, and minimal access to funding and infrastructure.

2. Innovation is a Key Performance Driver

A strong positive correlation was found between innovation index and revenue growth. Sectors investing in product or process innovation showed significantly higher performance.

3. Funding Access is Uneven

IT startups attracted better funding, often from national-level investors. However, traditional sectors, particularly Handicrafts and Food Processing, struggled to secure even local financing due to inadequate formalization and collateral requirements.

4. Ecosystem Gaps Exist

Despite having startup potential, Agra lacks specialized startup infrastructure, sector-specific incubation, and access to mentoring—especially for tech and manufacturing sectors.

5. Operational Best Practices are Not Uniformly Applied

Startups that implemented structured operational practices (inventory control, lean management, marketing strategy, digital accounting, etc.) outperformed those that did not—across all sectors.

SWOT Analysis

Sector	Strengths	Weaknesses	Opportunities	Threats
Manufacturing	Established base; skilled labor	Old tech; high energy costs	Govt schemes; MSME incentives	Metro competition; regulation
Services	Low setup; scalable	Informality; skill gaps	Urban demand; digitization	Saturation; shifting trends
IT & Tech	Innovative; youth-led	Funding gaps; weak support	Remote work; incubation	Talent drain; security risks
Food Processing	Agro base; culinary roots	Storage/logistics issues	Exports; FSSAI boost	Regulation; perishability
Handicrafts	Artisan base; export niche	Low branding; digital gaps	E-commerce; tourism	Copying; artisan decline

Recommendations

Based on the above findings, the following actionable recommendations are proposed to enhance startup performance in Agra:

1. Develop Sector-Specific Incubators

Establish dedicated incubation centers for major sectors such as manufacturing, IT, and handicrafts.

These should offer access to shared infrastructure, mentorship, marketing support, and funding linkage.

2. Promote Digital Inclusion and Skill Development

Conduct digital literacy programs and provide platforms for artisans and traditional sector entrepreneurs to sell online (e.g., Amazon Karigar, Etsy).

Offer short-term skill and operational training focused on innovation, product design, and online branding.

3. Improve Local Funding Access

Establish local venture capital or microfinance funds in collaboration with banks and private players.

Simplify procedures for availing government schemes like Mudra Loans, PMEGP, and Startup India Seed Fund.

4. Strengthen Ecosystem Support

Create a regional startup policy under local government bodies with specific incentives for high-potential sectors.

Foster partnerships between academic institutions and startups for R&D, prototype development, and business modeling.

5. Focus on Innovation-Driven Culture

Launch annual innovation challenges or startup festivals in Agra to encourage new ideas and attract attention from investors and policymakers.

Promote industry-academia collaborations to nurture innovation hubs within local colleges and technical institutes.

6. Support for Handicrafts and Traditional Enterprises

Provide design, packaging, and export training to artisans to increase global competitiveness.

Encourage cluster development models that bring together artisans, retailers, and exporters under government facilitation.

Summary Table: Sector-Wise Recommendations

Sector	Key Challenge	Recommendation
Manufacturing	Tech lag, poor funding	Incubators, modern machinery support, soft loans
Services	Skill gaps in scaling	Operational training, digital tools
IT & Technology	Weak local ecosystem	Tech parks, funding networks, startup events
Food Processing	Logistics & storage	Cold chains, FSSAI training, agro linkages
Handicrafts	Low innovation, market access	Digital onboarding, artisan networks, e-commerce training

Conclusion and recommendations

This research finds that performance of startups in Agra is directly related to sectoral attributes. IT and service industries are innovation- and demand-driven, whereas conventional industries require modernization and handholding. One-size-fits-all policy might not be effective. Sector-specific interventions are necessary.

- Develop sector-specific incubators and shared workspace facilities.
- Foster digital inclusion and branding assistance to artisans.
- Enhance access to local venture capital funding and mentoring networks.

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